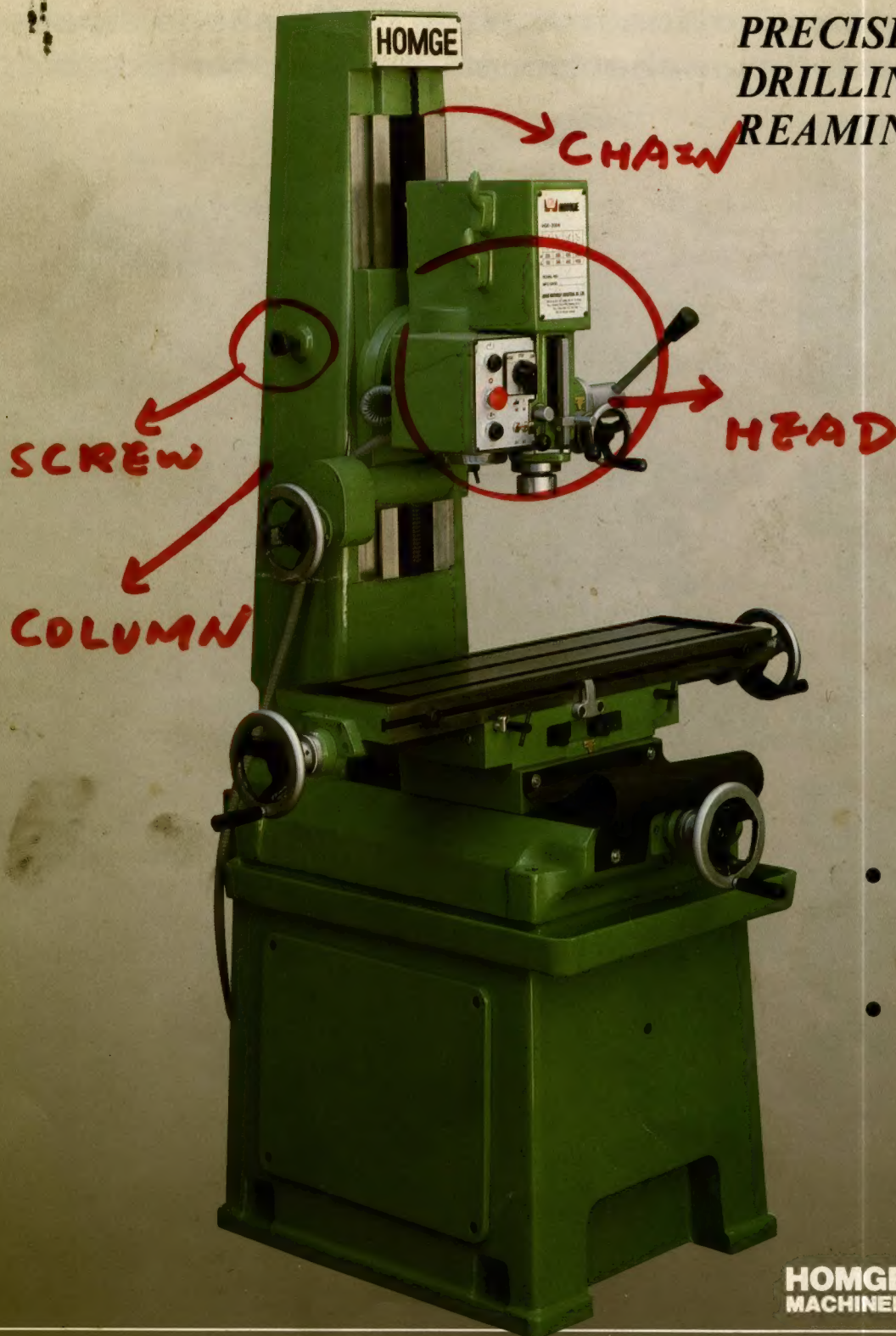




# HGE-3008

## GEARED HEAD UNIVERSAL MACHINE

*PRECISION MILLING  
DRILLING, BORING,  
REAMING, TAPPING.*



- *INCLINABLE  
GEARED  
HEADSTOCK*
- *UNIVERSAL  
WORKTABLE*

**HOMGE**  
MACHINERY INDUSTRIAL CO., LTD.





# PATENTED HGE-3008 GEARE

The HGE-3008 is the most advanced machine in its class. The dovetail slides make the machine capable of machining a wide range of workpieces. It is ideally suited for complicated formed workpieces and is very attractive for machine work shops, model building laboratories, schools and training centers etc. because of its compact design and high performance.



\*Two dovetail slides are hardened (HRC 40) and ground to guarantee long life.

\*The all geared headstock is of high performance and is danger free to change spindle speeds and no time is lost changing belts or pulleys.

\*All electrical controls are located at the front of machine for easy operation.

\*Build-in drill ejector eliminates the use of a drill drift to change tools.

\*Large worktable 820 x 230 mm with 450 x 260 mm traverse is universal R & L 45°.

\*Cast iron base incorporates a coolant trough (coolant optional).

\*Wide, robust cast iron machine stand supports the machine in a sturdy.

\*A 60kgs cast iron counterweight is connected by a chain to balance the headstock.

\*High grade cast iron with precision ground dovetail slides provides precision and steady performance.

\*The headstock is inclinable which is the most suitable for complicated shaped workpieces.

\*Build-in electric motor is a compact design.

\*Power feed for worktable longitudinal traverse is available on option.

\*The large worktable is supported by a massive base and enables to machine the large workpieces in steady.

Wide selection of optional accessories makes the HGE-3008 a really multiple purpose universal machine.





# HEAD UNIVERSAL MACHINE

the world. The robust bed-type column with double precision and heavy duty cutting applications. It is such as models and parts etc. The HGE-3008 must ders, precision engineers, technical and scientific use of its high performance and economic price.



## FUNCTIONAL EXAMPLES

1. COORDINATE DRILLING WITH INCLINED HEADSTOCK  
Accessories: machine vise, drill.

2. TAPPING

Accessories: machine vise, taper, taper holder and arbor.

3. FACE MILLING

Accessories: stepped clamping shoes, face milling cutter & arbor.

4. T-SLOT AND KEY-WAY MILLING

Accessories: stepped clamping shoes, collet chuck and arbor, T-slot cutter, end mill.

5. BORING AND FACING

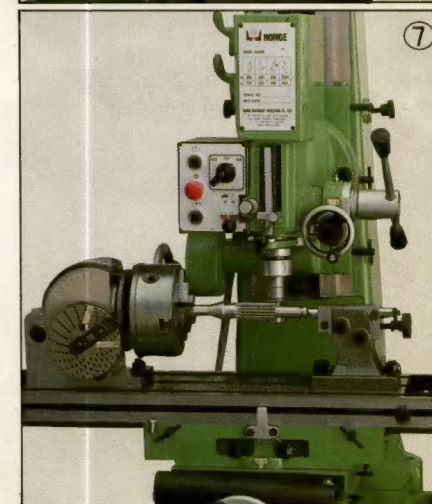
Accessories: stepped clamping shoes, boring and facing head, fly cutter, universal lathe chuck.

6. SAWING WITH 90° INCLINED HEADSTOCK

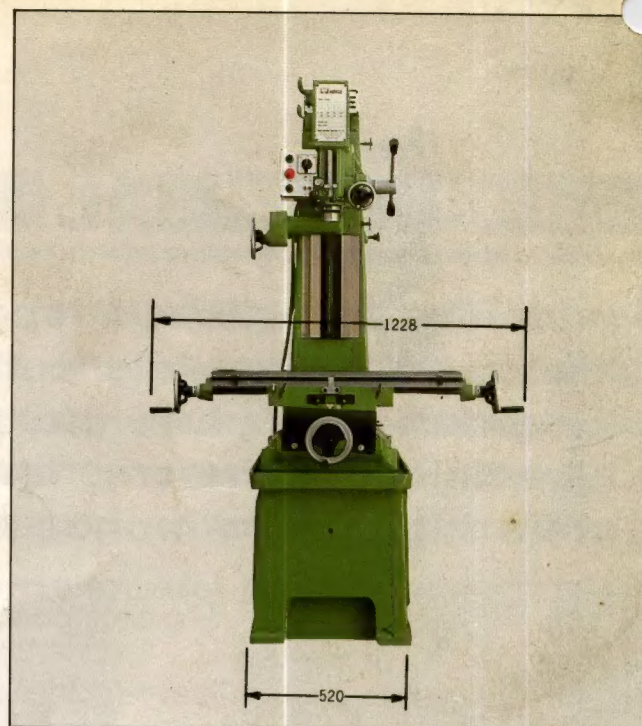
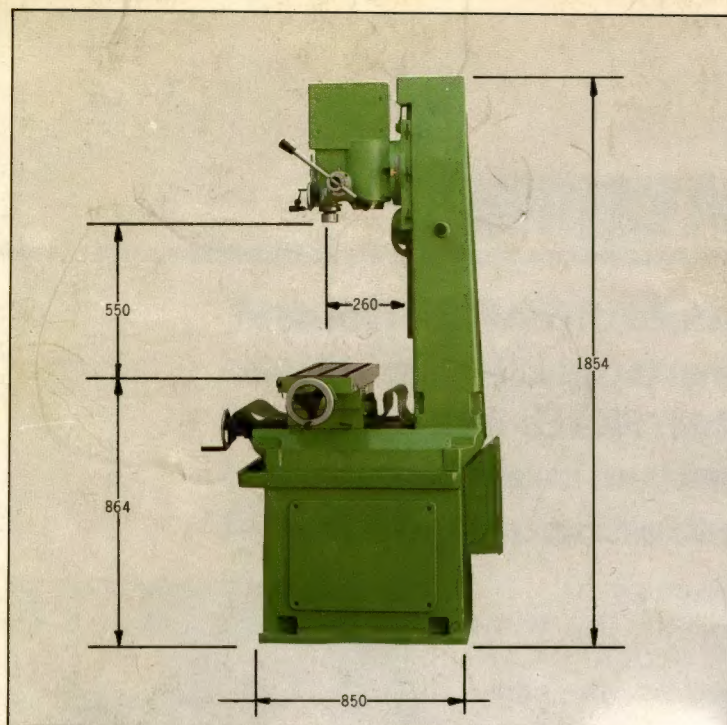
Accessories: machine vise, circular saw, horizontal milling arbor and collars.

7. GEAR MILLING

Accessories: dividing head, universal lathe chuck, gear milling cutter and arbor.







### SPECIFICATIONS:

|                                 | MM                                      | INCH              |
|---------------------------------|---|-------------------|
| Drilling capacity               | Ø 32                                    | Ø 1 1/4           |
| Full-back cutter capacity       | Ø 76                                    | Ø 3               |
| End mill capacity               | Ø 25                                    | Ø 1               |
| Tapping capacity                | Ø 19                                    | Ø 3/4             |
| Worktable size                  | 820 x 230                               | 32 1/4" x 9"      |
| Longitudinal travel             | 450                                     | 18                |
| Quill travel                    | 260                                     | 10 1/4"           |
| Spindle travel                  | 115                                     | 4 1/2"            |
| Distance (spindle to table) max | 550                                     | 22                |
| Distance (spindle to column)    | 260                                     | 10 1/4"           |
| Spindle speed RPM x steps       | 100 — 2900 x 8                          |                   |
| Spindle nose                    | M.T. No. 3                              |                   |
| Main motor                      | 1HP x 3ph or 1ph                        |                   |
| Coolant equipment               | 1/8HP                                   |                   |
| Dimensions of base              | 850 x 520                               | 33 1/2" x 20 1/2" |
| Work table height from base     | 864                                     | 34"               |
| Machine height from floor       | 1854                                    | 73"               |
| Net weight (approx)             | 600 kgs.                                |                   |
| Gross weight (approx)           | 700 kgs.                                |                   |
| Measurement 2 sets/1 case       | 1965 x 1168 x 1981<br>(77" x 46" x 78") |                   |

### STANDARD ACCESSORIES:

1. Milling arbor
2. Tool box with necessary tools

### OPTIONAL ACCESSORIES:

1. Dividing head
2. Machine vise
3. Coolant equipment
4. Longitudinal power feed
5. Collet 4 - 25mm
6. Stepped clamping shoes
7. Right angle plate
8. Universal lathe chuck
9. Horizontal milling arbor and collars
10. Boring and facing head
11. Tapper holder



Manufacturer & Exporter: **HOMGE MACHINERY INDUSTRIAL CO., LTD.**

Factory: ~~NO. 8 ALLEY 20, LANE 43, FU TA RD, TA LI HSIANG~~

TAICHUNG, TAIWAN R. O. C.

~~TEL: (042) 259743 — 259748~~

TELEX: 56346 HOMGE



HGE-3008

**PARTS LIST  
&  
MANUAL SERVICE**

**READ THIS MANUAL CAREFULLY**





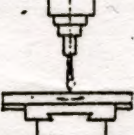

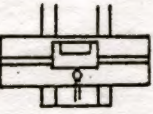
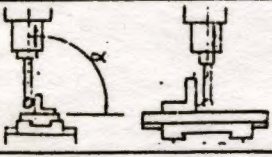
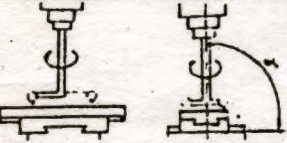
IT IS ESSENTIAL TO GIVE THE SERIAL NUMBER OF YOUR MACHINE IN ANY ORDER OF REPAIR PARTS TO ASSURE PROMPT AND ACCURATE SERVICE. ORDER REPAIR PARTS BY PART NUMBERS, DESCRIPTION AND MACHINE SERIAL NUMBER.

SERIAL NO: 8140 MFG. DATE: 1987 2



| TIEM                       | PAGES |
|----------------------------|-------|
| 1. TEST-CHART              | 2     |
| 2 SPECIFICATION            | 3     |
| 3 INSTRUCTIONS             | 4-6   |
| 4 FOUNDATION CHART         | 7     |
| 5 ELECTRIC CIRCUIT DIAGRAM | 8     |
| 6 NAME OF PART             | 9     |
| 7 OPERATION                | 11-14 |
| 8 PARTS LIST               | 15-27 |



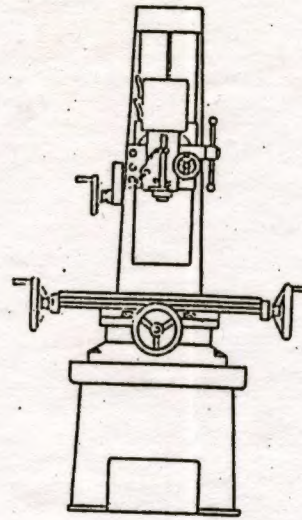
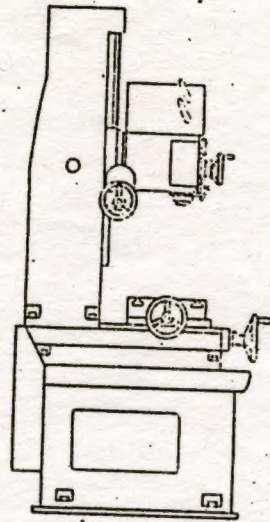
| TEST TO BE APPLIED  |   | Error in $\mu\text{m}$ |        |
|---|---|------------------------|--------|
|   |   | permiss                | Actual |
|    | Straightness of Work table.<br>Longitudinal direction.                        | 0.02                   |        |
|   | Straightness of Work table.<br>Cross direction.                               | 0.04                   |        |
|    | Spindle runout.   | 0.01                   |        |
|    | Spindle face runout.  | 0.015                  |        |
|   | Spindle hole runout at the end<br>of 500mm testing bar.                       | 0.02                   |        |
|  | Parallelism of Spindle and Work<br>table longitudinal direction.              | 0.01                   |        |
|  | Parallelism of Spindle and Work<br>table cross direction.                     | 0.02                   |        |
|  | Parallelism of Work table and<br>T-Slot longitudinal direction.               | 0.01                   |        |
|  | Squareness of Spindle sleeve<br>movement with Work table cross way.           | 0.025                  |        |
|   | Squareness of Spindle sleeve<br>movement with Work table<br>longitudinal way. | 2 90                   |        |
|  | Squareness of Spindle with Work<br>table in longitudinal way.                 | 0.02                   |        |
|   | Squareness of Spindle with Work<br>table in cross way.                        | 2 90                   |        |

TEST BY:

APPROVED BY:



# MAIN DIMENSIONS. SPECIFICATIONS.



|                                 |             |                 |
|---------------------------------|-------------|-----------------|
| DRILLING CAPACITY               | mm<br>φ32   | inch<br>1 1/4   |
| FULL-BACK CUTTER CAPACITY       | φ76         | φ3              |
| END MILL CAPACITY               | φ19         | 1 3/4           |
| TAPPING CAPACITY                | φ19         | 3/4             |
| WORKING TABLE SURFACE           | 820x230     | 32 3/4 x 9      |
| LONGITUDINAL TRAVEL             | 450         | 18              |
| CROSS TRAVEL                    | 260         | 10 1/2          |
| SPINDLE TRAVEL                  | 115         | 4 1/2           |
| DISTANCE (SPINDLE TO TABLE) MAX | 450         | 18              |
| DISTANCE (SPINDLE TO COLUMN)    | 260         | 10 1/2          |
| SPINDLE SPEED RPM               | 100 ~ 2900  |                 |
| SPINDLE NOSE                    | MORSE NO. 3 |                 |
| MAIN MOTOR                      | 1 HP        |                 |
| COOLANT EQUIPMENT               | 1/8 HP      |                 |
| DIMENSIONS OF BASE              | 1100x520    | 43 1/2 x 20 1/2 |
| WORK TABLE HIGHT FROM BASE      | 810         | 31 3/8          |
| MACHINE HIGHT FROM FLOOR        | 1800        | 70 3/4          |
| NET WEIGHT                      | 500 KGS     |                 |



#### GEAR BOX (Drg. No.3)

When it is required to disassemble the gear box, remove the three screws which connect the drive gear box, to the spindle box. then take away the fan cover (34) and the fan (30) from the Spindle Box. By knocking slightly on the rotor shaft (25) the gear box may be separated. The gear box casing (14) consisting of two halves can be taken apart by loosening the four screws (20) All the shafts can now be taken out for further disassembling.

It is important while reassembly the gear box to see that the shift pin (36) fits properly into the groove of the clutch (7) When replacing the gear box on to the spindle box, it must be checked that the driving keys (Drg. 4,7) in the spindle (Drg. 4,1) are in proper place and that they will fit properly into the corresponding key ways on the gear box output spindle shaft (1).

#### SPINDLE (Drg. No.4)

The Spindle (1) is journalled in the sleeve (2) by a taper bearing (3) at the bottom and by a radial ball bearing (4) at the top. At the top of the spindle there is a nut (5) with which the play in the taper bearing can be adjusted. This nut is tightened. Only when the sleeve is removed from machine. For removing the sleeve from the machine the following is the easy way. First of all hold the the spring housing (Drg. 5,1) and at the same time loosen the locking screw (Drg.5,2) which secures it. Now turn the housing in order to release the pressure on the spring (Drg.5,3) The feed lever (Drg 5,15) is pulled off its centre (Drg.5,12) and the circlip (Drg.5,17) is taken away/ The centre is pulled off the feed shaft and the key (Drg.. 5,19) is removed.

Remove the circlip (Drg.5,17). The feed drive shaft can now be pushed so far to the left to disengage the teeth from the quill feed rack (Drg.4,6) The sleeve can now be removed from the housing.

When reassembling the machine the keys (Drg.5,7) on the spindle are made to coincide with the key ways in the spindle shaft. (Drg.3,1) by turning the spindle. The care should be taken to avoid damaging of the keys when sliding the sleeve into position.



### LUBRICATION

All the gears and shafts in the gear box are fitted with ball bearings. The gear box is filled with high grade bearing grease which is quite sufficient to provide lubrication to the system for couple of years. Some oil points are provided at different places, where a few drops of oil should be dripped daily. The gear box must not be filled with oil. The excessive lubrication should be avoided, as excess oil can drop down into the motor and damage its insulation. A small quantity of oil should also be poured on column and Spindle Sleeve after thorough cleaning every day.

### ELECTRIC CONNECTIONS

The Drawing No.9 shown the machine. All the electric equipments in the machine are included in the internal circuit and the machine is noly required to give the mains to the three points of the connector strip as shown.

### SELECTION OF SPINDLE SPEED (Drg. No.2)

The selection of the different Spindle Speeds according to the Speed Chart (1) on the front of the gear box is effected by the levers (2) on the left hand side of gear box also by means of the pole change switch (3) for the motor. The quill can be locked by means of the screw provided in front of the Spindle Box.

### MILLING OPERATIONS

While milling, the quill should be firmly locked. Vibrations and strokes occur when milling, therefore; the tool has to be firmly locked in order not to loosen from the taper. It is advisable to check the taper wedges of the slide at short period. The slides not in use must be locked.



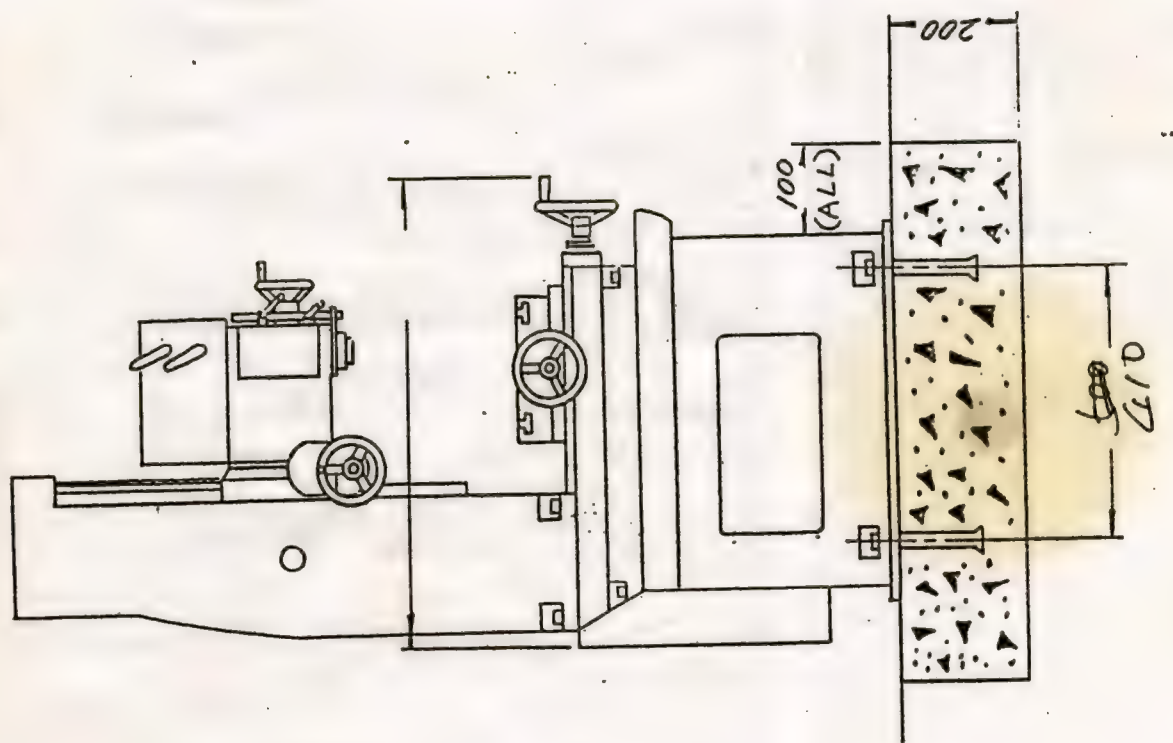
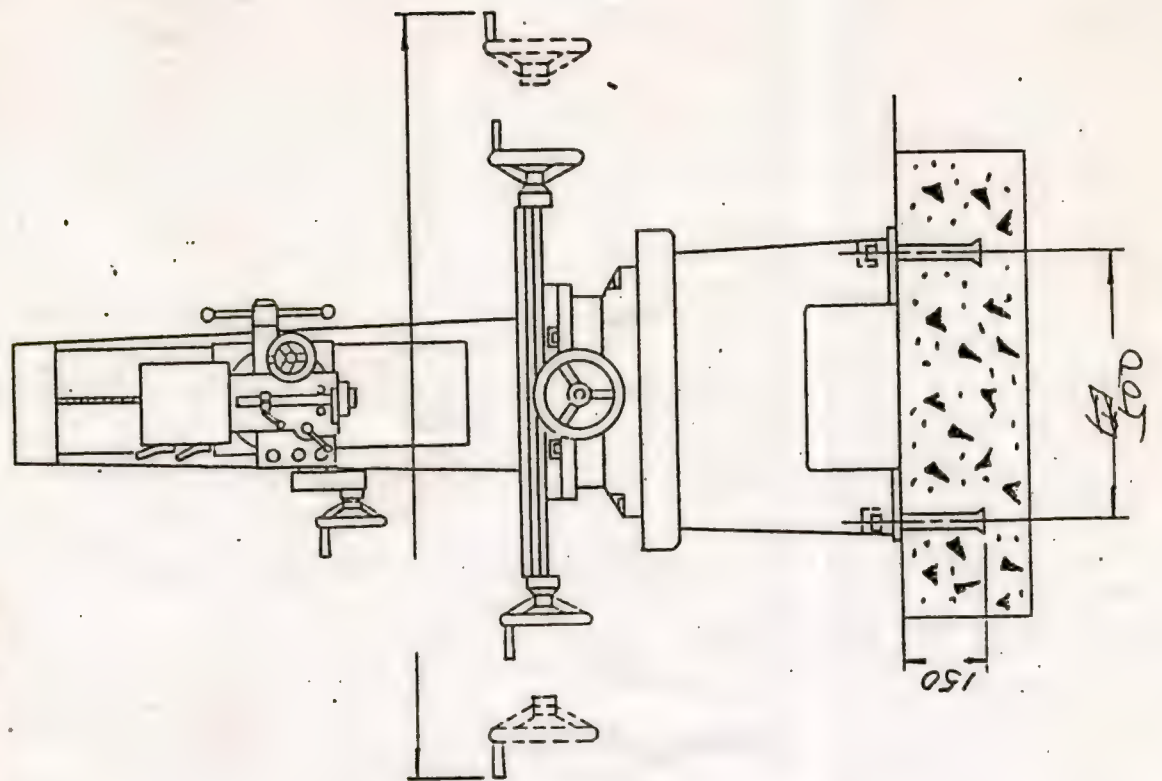
COUNTER BALANCING (Drg. No.5)

For counter balancing of the spring housing for the spindle, hold the spring (1) and at the same time loosen the locking screw (2) which secures it. Now turn the housing in order to release the pressure on the spring (3) then turn the spring housing round in a clock-wise direction, so that the spring will be released from the screw (4) with which it is fixed to the feed shaft (5) The spring housing can now be removed.

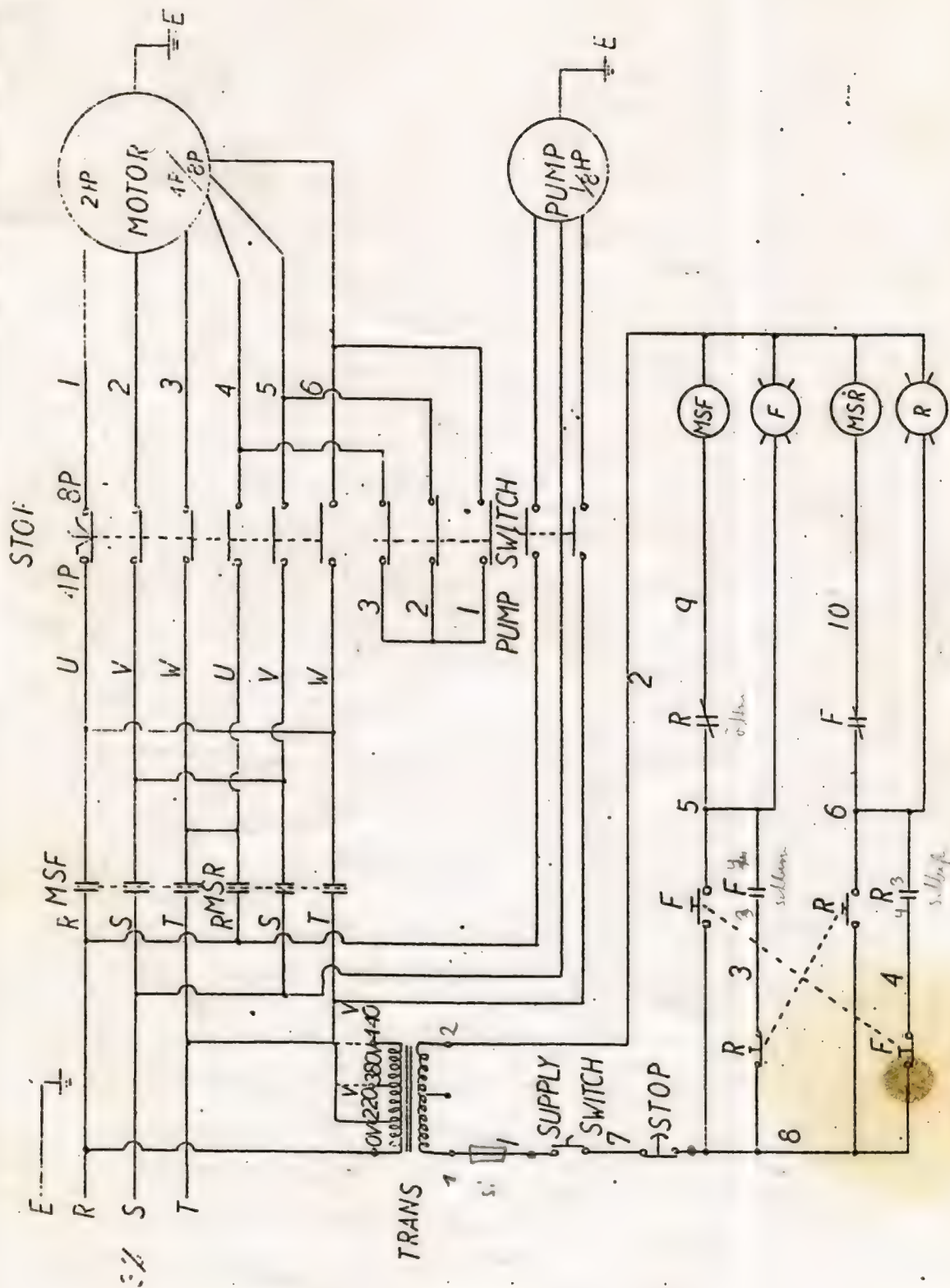
While reassembling press the spring housing with the spring into its place and turn it in counter clock wise direction until the correct balancing of the spindle is obtained. Then lock the housing with the screw (2).



# FLOOR SPACE, FOUNDATION

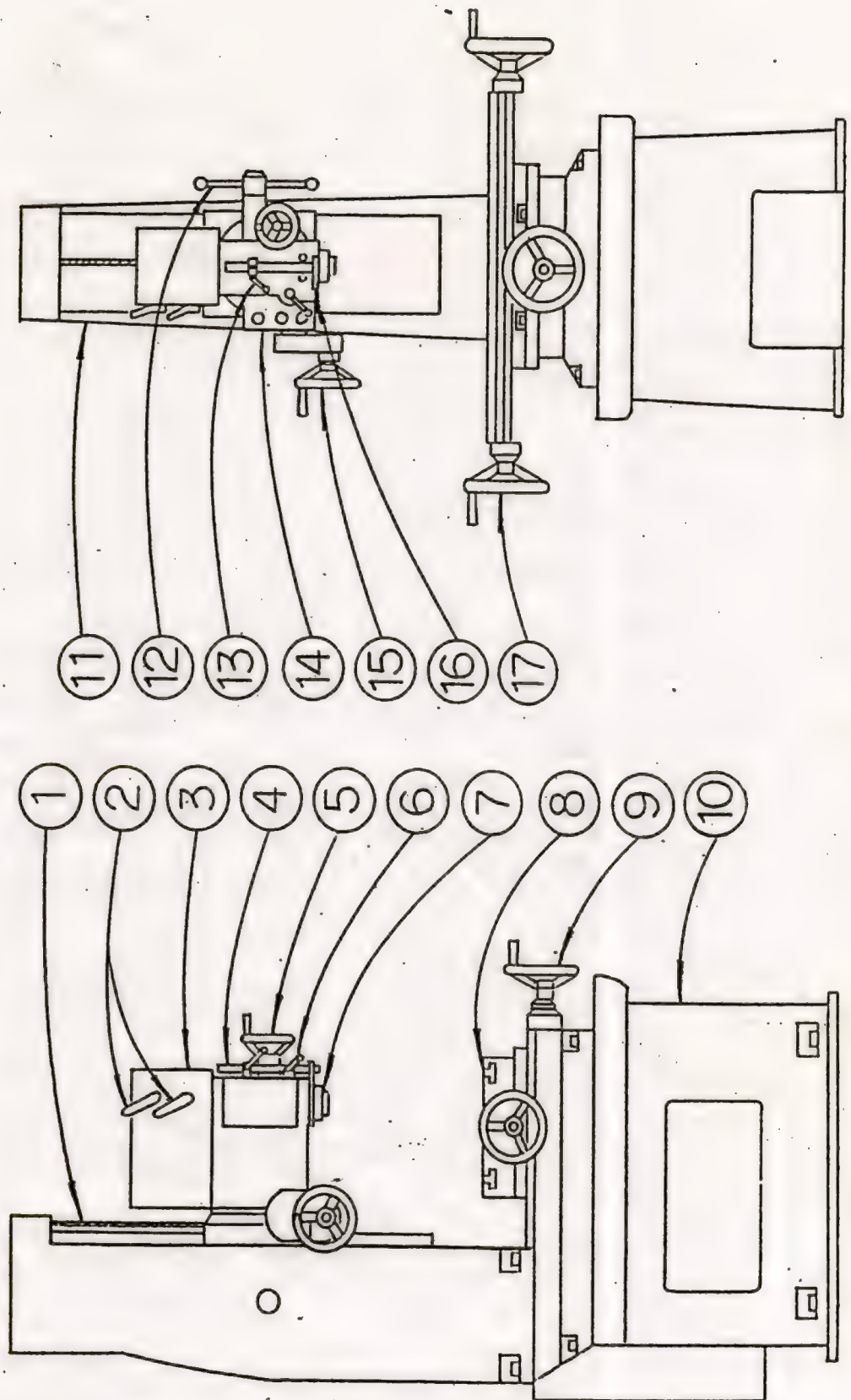








NAME OF PART



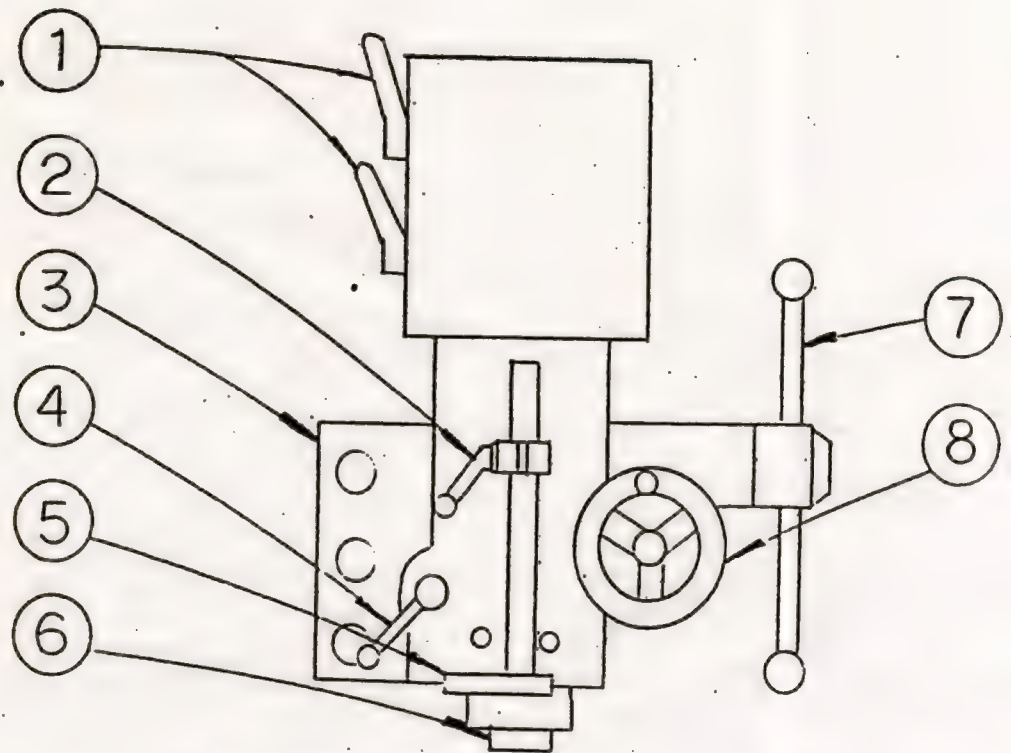


NAME OF PART

1. CHAIN
2. SPEED LEVERS
3. GEARS BOX
4. CLAMP GUIDE
5. FIND FEED ATTACHMENT
6. QUILL LOCKING SCREW
7. SPINDLE
8. TOP TABLE
9. WHEEL
10. BASE
11. COLUMN
12. FEED LEVERS
13. CLAMP NUT LEVER
14. CONTROL BOX
15. WHEEL
16. EJECTOR PIECE
17. WHEEL



## OPERATION



(FIG A)

### A. GEARS BOX (SEE FIG A)

- 1 SPEED LEVERS : FOR CHANG THE SPEED (SEE FIG H )
- 2 CLAMP NUT LEVER : FOR CLAMP THE CLAMP GUIDE
- 3. CONTROL BOX : FOR CONTROL ELECTROAL (SEE FIG B )
- 4 LOCKING LEVER : FOR LOCKING QUILL
- 5. EJECTOR PIECE : FOR EJECTOR TOOL (SEE FIG E )
- 6 SPINDLE (SEE FIG 4 )
- 7 FEED LEVER : FOR SPINDLE FEED.
- 8 WHEEL : FOR LIMIT FEED



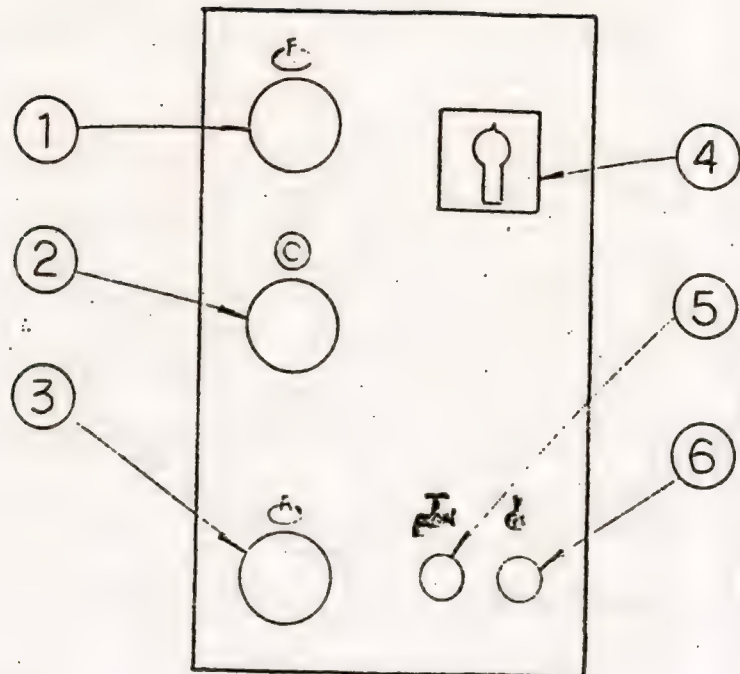


FIG. B

B. CONTROL BOX (FIG. B)

1. SPINDLE CLOCKWISE ROTATION
2. START OR STOP
3. SPINDLE COUNTERCLOCKWISE ROTATION
4. POLE CHANGE
5. COOLANT PUMP SWITCH
6. LAMP SWITCH

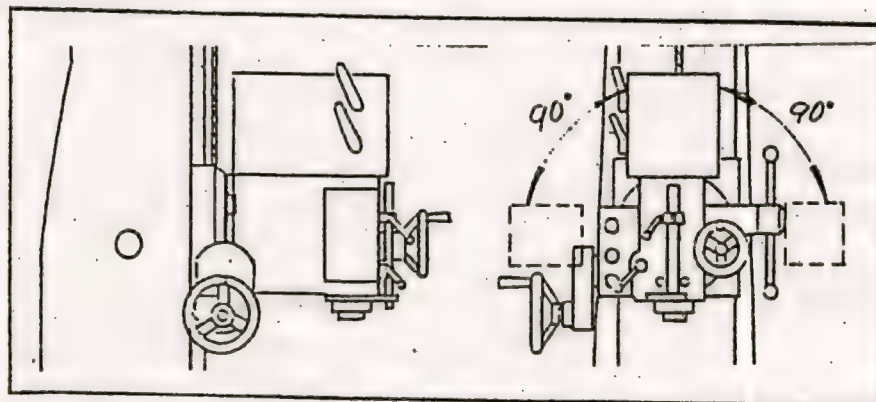


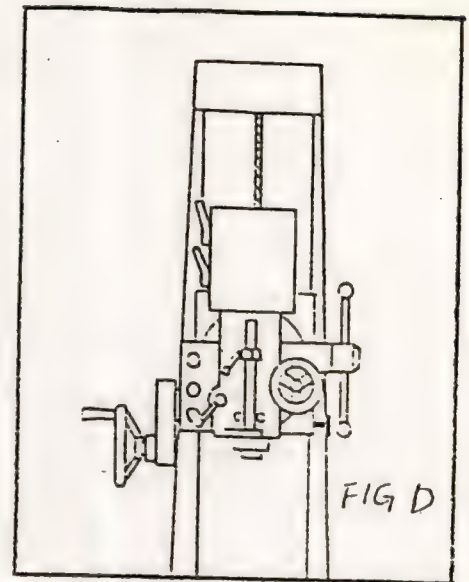
FIG. C

C. HEAD SWIVEL (SEE FIG. C)

1. TAKING OFF THE TAPER PIN
2. TURN OFF THE NUT
3. THE HEAD CAN BE SWIVELLED
4. THE ANGULAR POSITION CAN BE READ OFF FROM SCALE GRADUATED.

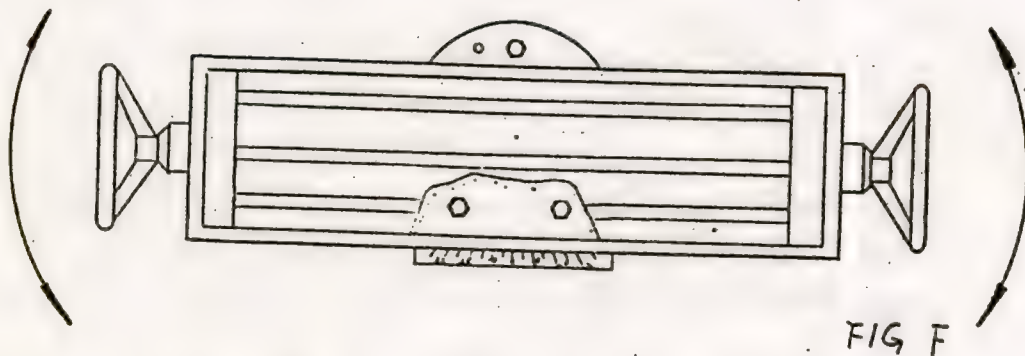
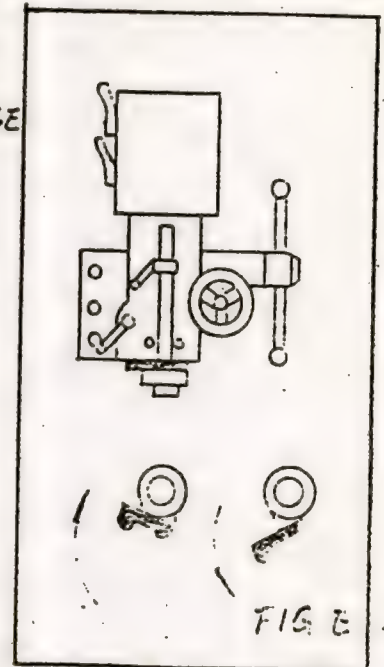


- D HEAD UP AND DOWN (SEE FIG. D)
- 1 TURN OFF THE LOCKING SWIRE
  - 2 TURN THE HAND WHEEL FOR UP OR DOWN.



E. EJECTING TOOLS (SEE FIG. E).

1. PULL OUT THE EJECT LEVER.
- 2 TURN THE FEED LEVER COUNTERCLOCKWISE
- 3 PUSH EJECT-LEVER TO ORIGINAL POSITION.



F TABLE SWIVELING (SEE FIG. F)

1. TAKE OFF THE TAPER PIN
- 2 UNLOCKING THE NUT
- 3 THE ANGULAR POSITION CAN BE READ FROM THE SCALE GRADUATED.



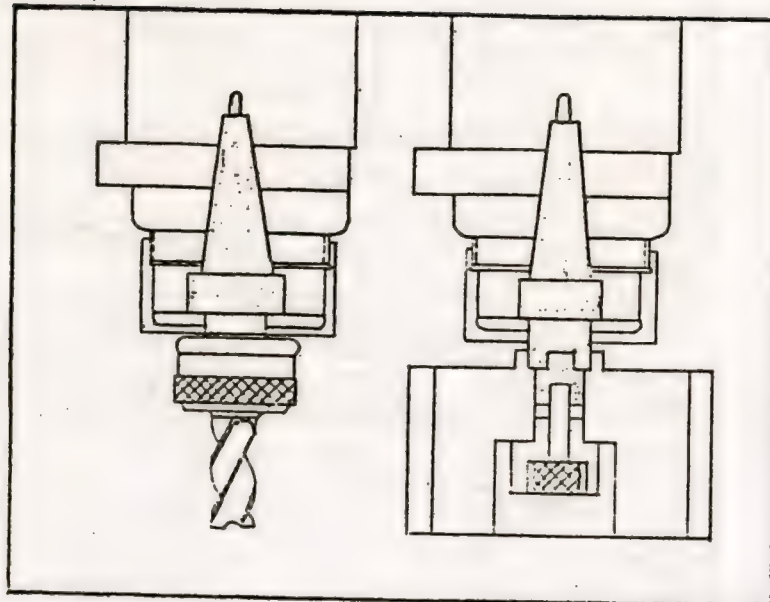






FIG. G

#### G MILLING

WHILE MILLING, THE QUILL SHOULD BE FIRMLY LOCKED. VIBRATIONS AND STROKES OCCUR WHEN MILLING, THEREFORE; THE TOOL HAS TO BE FIRMLY LOCKED IN ORDER NOT TO LOOSEN FROM THE TAPER.

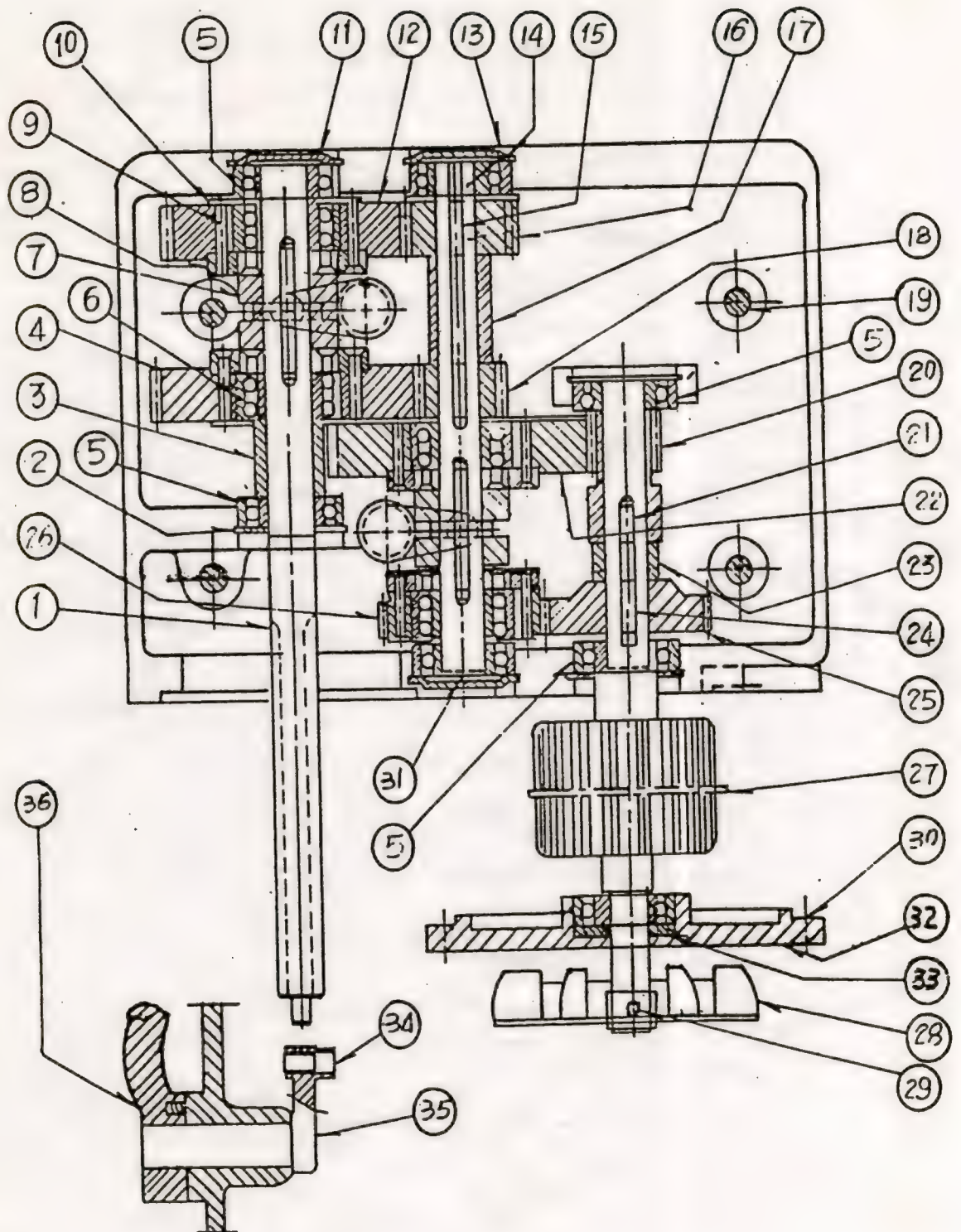
| r/m |  |  |  |  |
|-----|---|---|---|---|
| Low | 100   | 345   | 440   | 1450  |
| HI  | 205   | 695   | 885   | 2900  |

H. SELECT SPEED (SEE FIG. H)

FIG. H



DRG. NO. 3



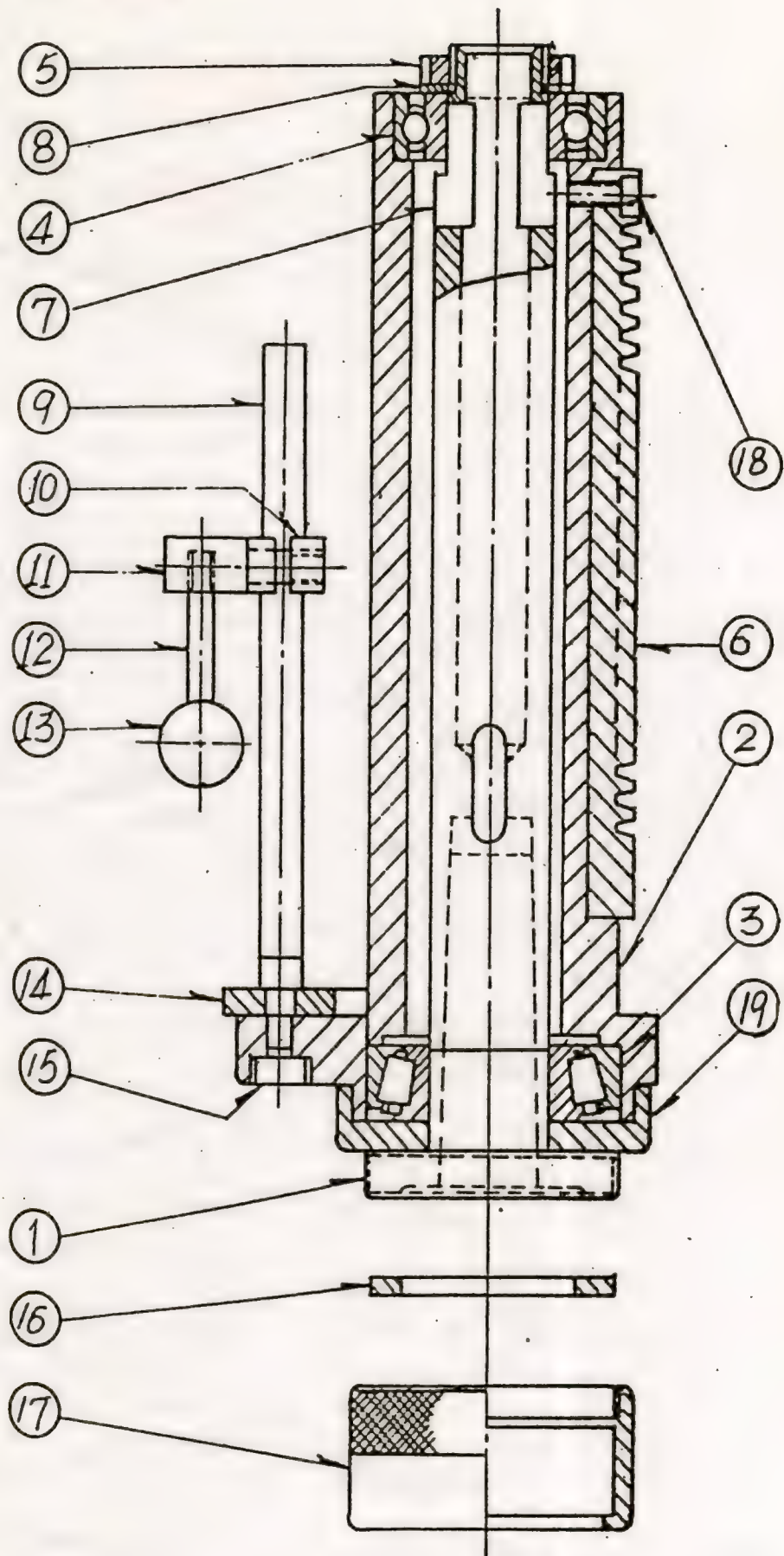


PART LIST (Drg. No.3)

1. Spindle Shaft
2. Washer
3. Spacer
4. 51 T. Gear 2 Module-Fibre
5. Ball Bearing - 6203
6. Double Row Ball Bearing - 5203
7. Clutch
8. Clutch Plate
9. Rivet Pin
10. Top Plate
11. Washer
12. 33 T. Gear 2 Module
13. Gear Box Casting
14. Intermediate Shaft
15. Key
16. 34 T. Gear, 2 Module - Fibre
17. Spacer
18. 16 T. Gear 2 Module
19. Socket Head Bolt M 10 x 100
20. 16 T. Gear 1.5 Module - Fibre
21. Key
22. 68 T. Gear 1.5 Module - Fibre
23. Spacer
24. Motor Shaft
25. 42 T. Gear 1.5 Module - Fibre
26. 42 T. Gear 1.5 Module
27. Motor
28. Fan
29. Fan Bolt
30. Bolt
31. Washer
32. Fan Cover
33. Gunmetal Washer
34. T - Pin
35. Clutch Operating Lever
36. Speed Lever



DRG. NO. 4



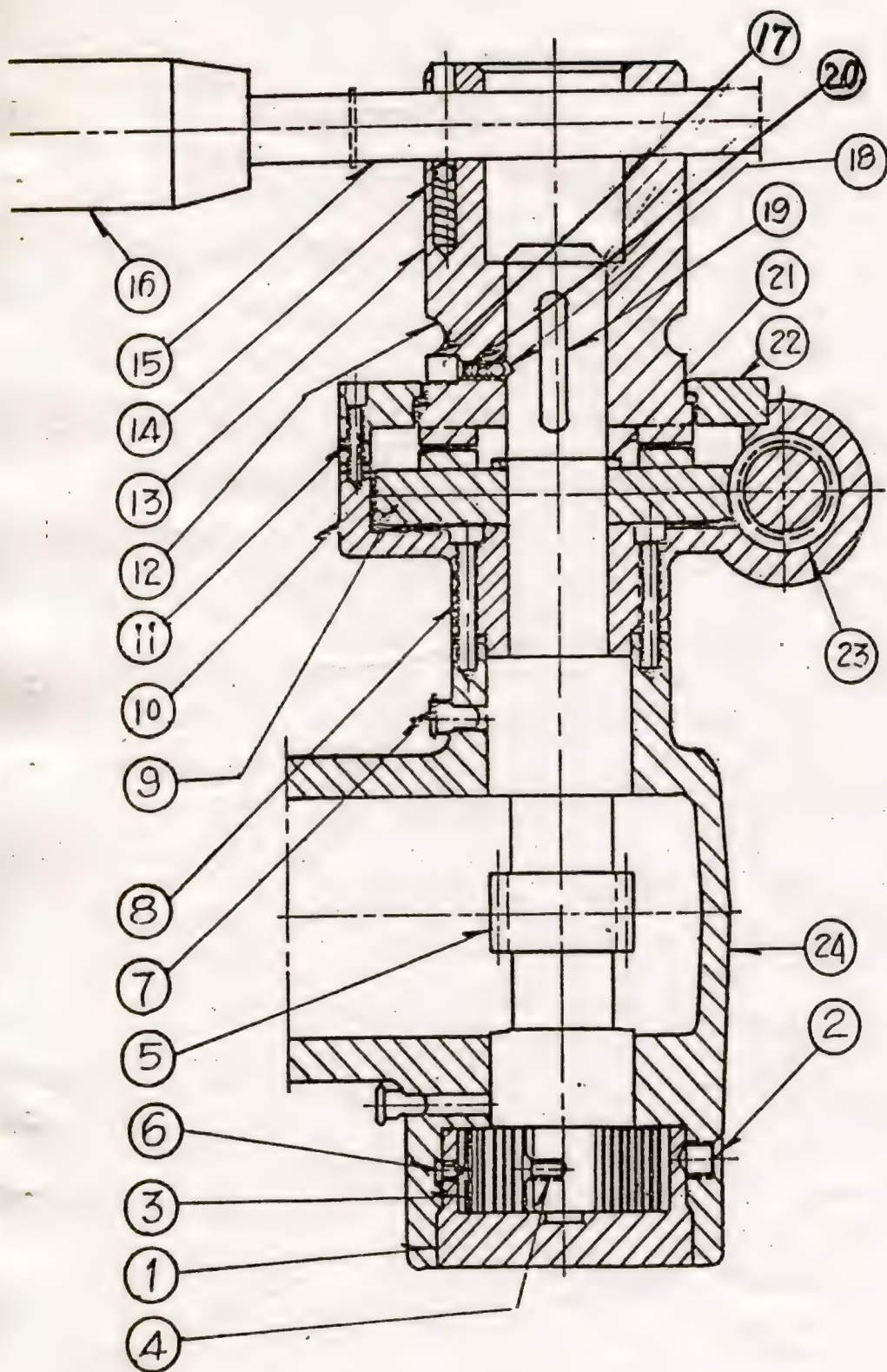


PART LIST (Drg. No.4)

1. Spindle
2. Sleeve
3. Taper Roller Bearing No. 30206
4. Ball Bearing No. 6205
5. Check Nut
6. Sleeve Feed Rack
7. Driving Keys
8. Washer
9. Clamp Guide
10. Depth Adjusting Clamp
11. Clamp Nut
12. Clamp Nut Lever
13. Ball Grip
14. Ejector Piece
15. Nut
16. Split Ring
17. Spindle Nose Nut
18. Rack Bolt
19. Sleeve Guard



DRG. NO. 5



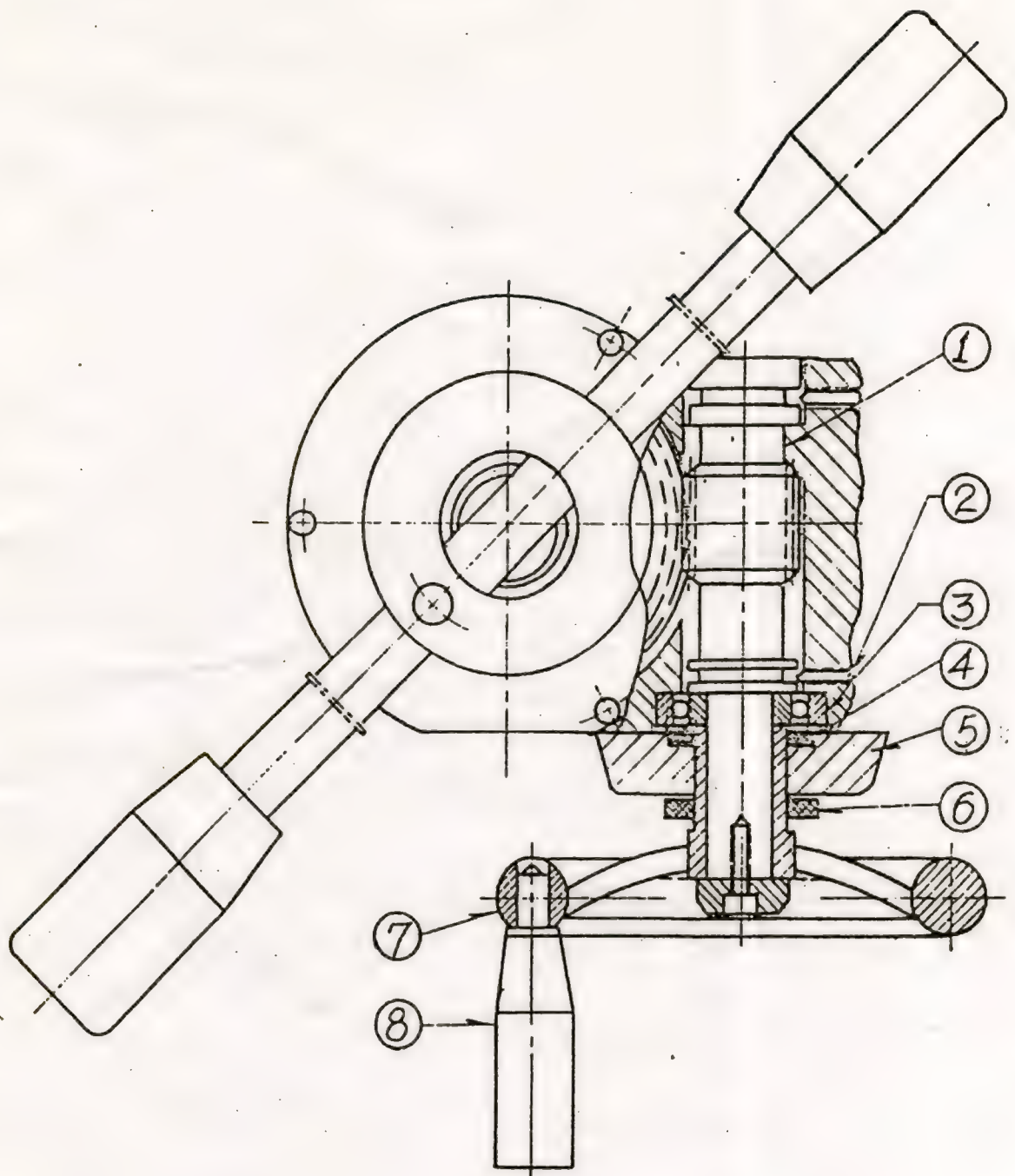


PART LIST (Drg. No.5)

1. Spring Housing
2. Locking Screw
3. Spring
4. Screw
5. Feed Shaft with 14 T Pinion
6. Spring Rivet Screw
7. Oil Point
8. Screw
9. Worm Gear
10. Oil Point
- 11 Cover Screw
12. Clutch Centre Body
13. Spring
14. Ball
15. Hand Feed Lever
16. Handle Grip
17. Set Screw
18. Ball
19. Key
20. Spring
21. Circlip
22. Body Cover
23. Worm
24. Spindle Box Body



DRG. NO. 7



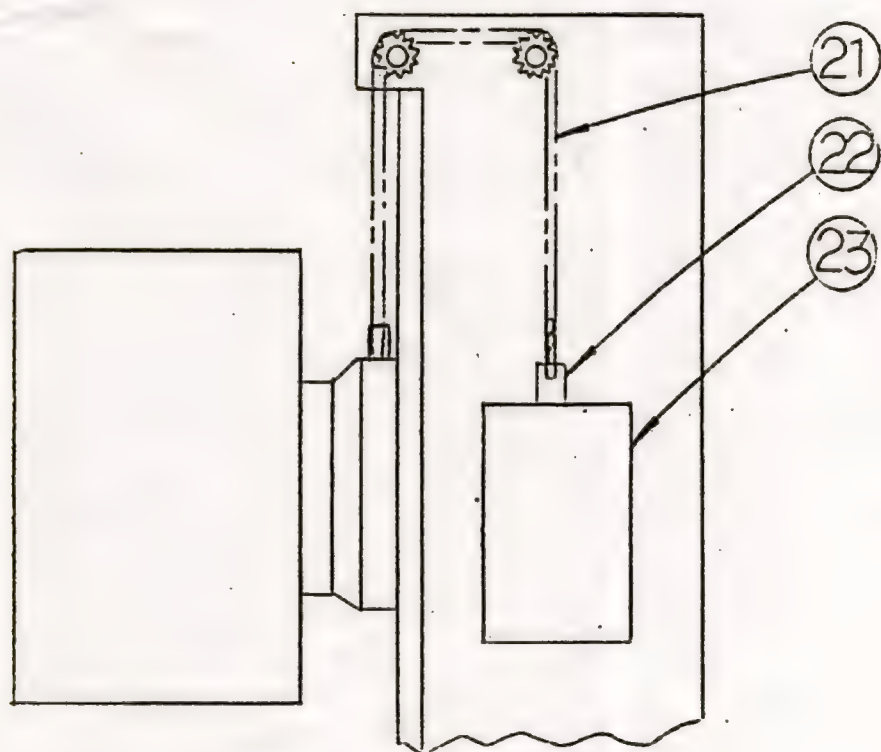
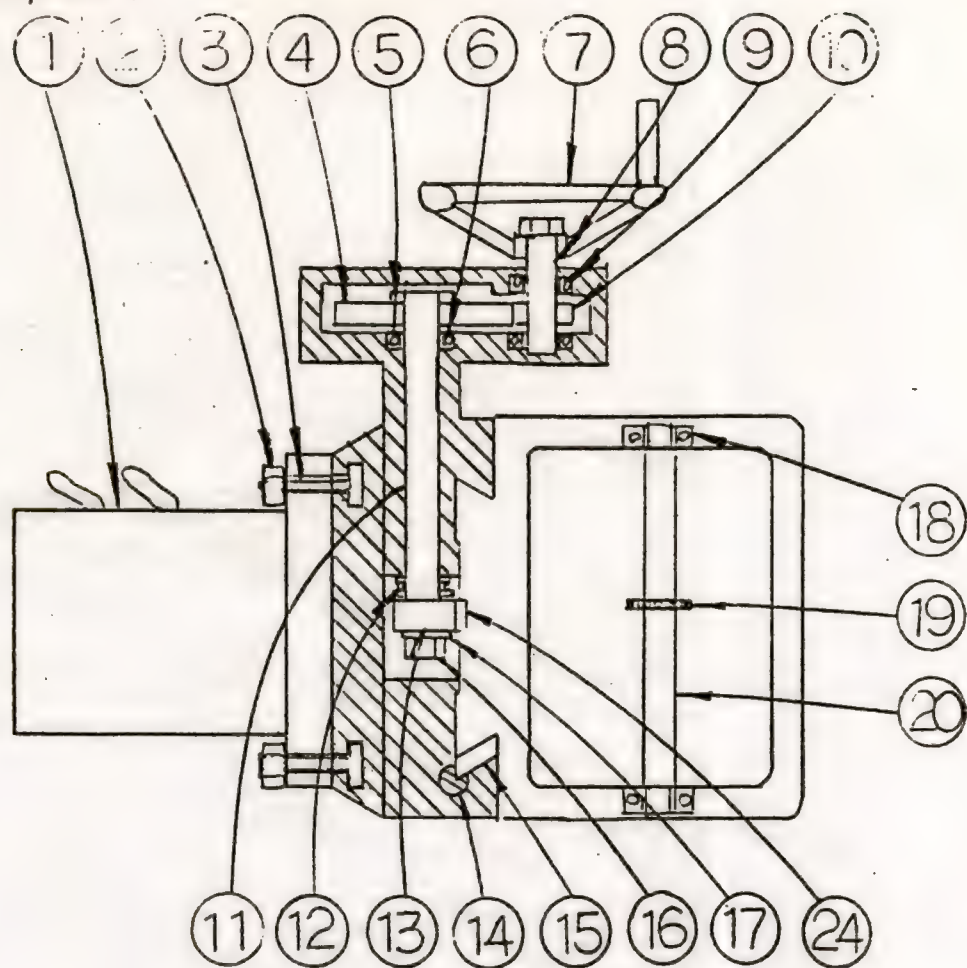


PART LIST (Drg. No.7)

1. Worm Shaft
2. Set Screw
3. Ball Bearing #6001
4. Washer
5. Nut
6. Spring
7. Hand Wheel
8. Grip Handle



DRG. N. 6. 7

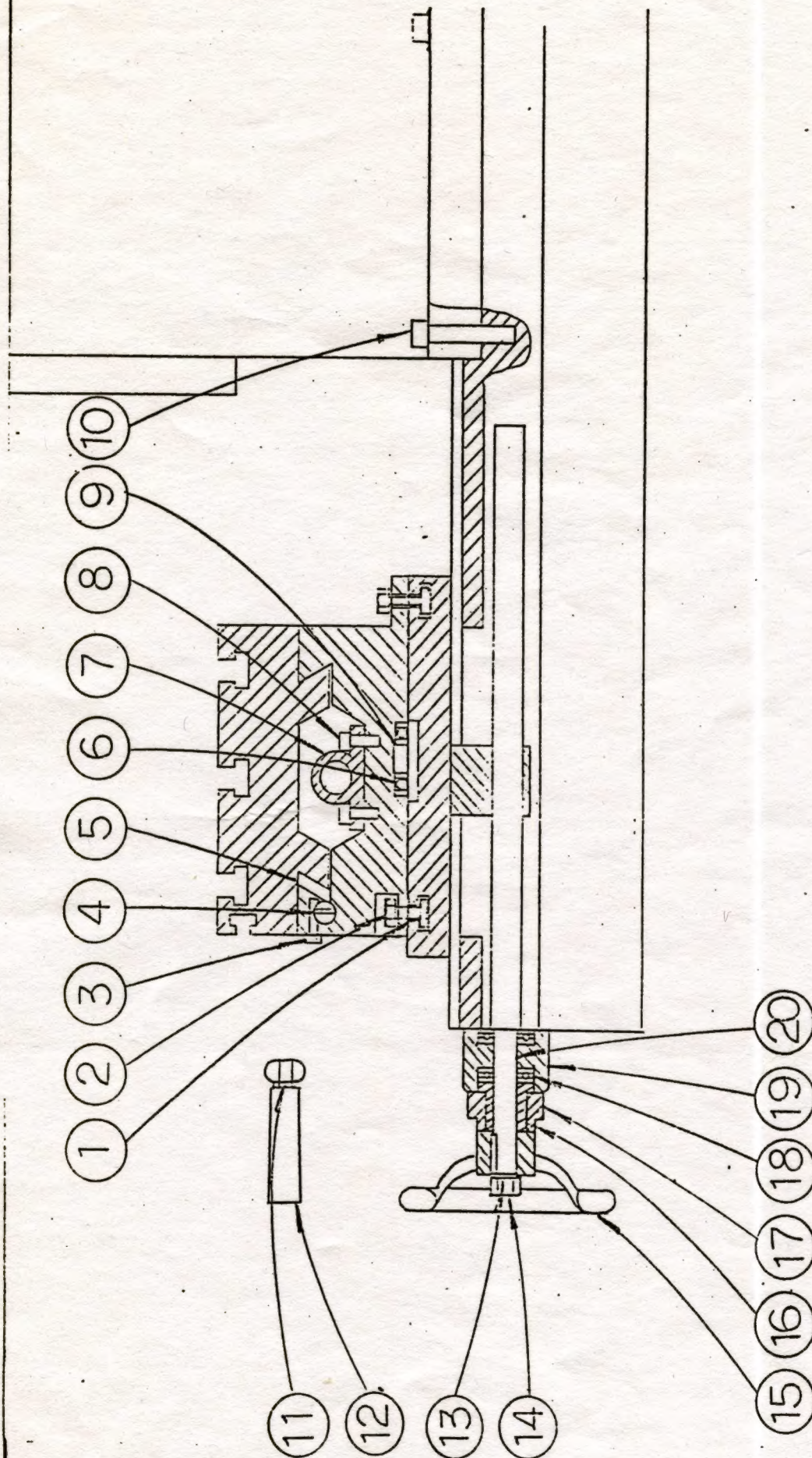


PART LIST (DFG. NO. 8)

- 1 GEARS BOX
- 2 NUT
- 3 LOCKING SCREW
- 4 GEAR
- 5 NUT
- 6 BEARING
- 7 HAND WHEEL
- 8 SHAFT
- 9 BEARING
- 10 GEAR
- 11 SHAFT
- 12 BEARING
- 13 GEAR
- 14 SCREW-GIB
- 15 GIB-TABLE
- 16 NUT
- 17 HASHER
- 18 BEARING
- 19 CHAIN GEAR
- 20 SHAFT
- 21 CHAIN
- 22 SCREW-SZT
- 23 SCALE-WEIGHT
- 24 RACK

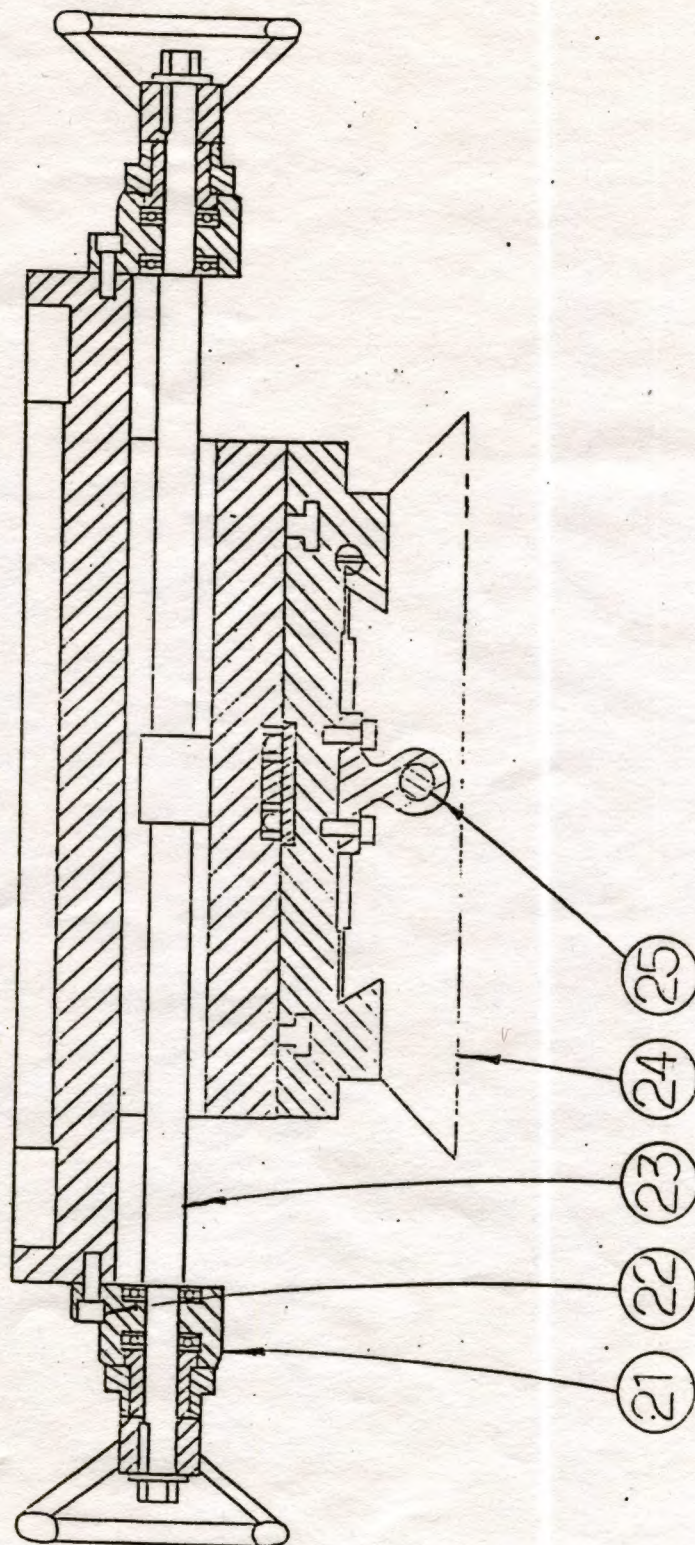


DRG. NO. 9





DRG. NO. 10

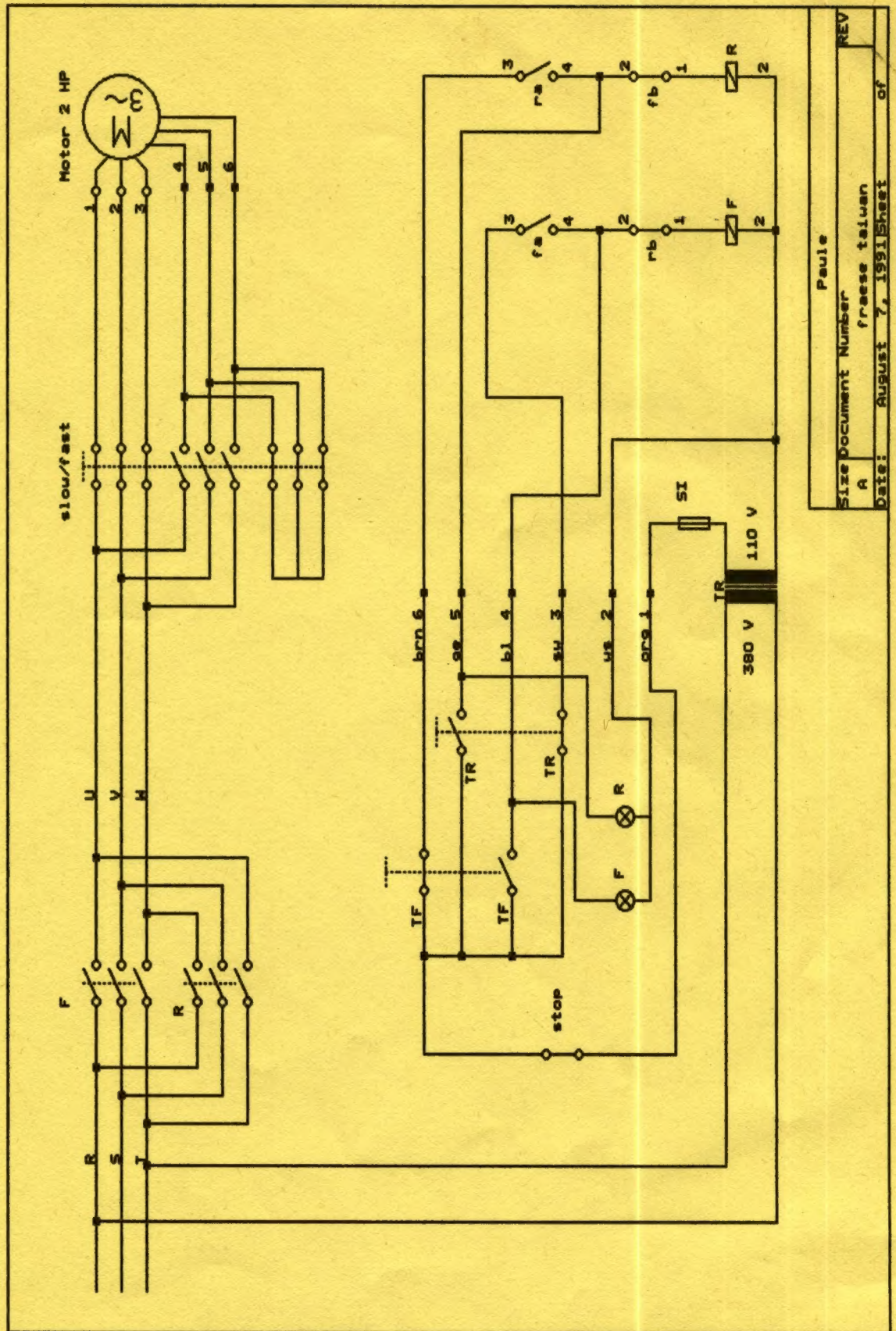




PART LIST (LAG. NO. 9. 10)

1. LOCKING SCREW
- 2 NUT
- 3 SCREW
- 4 SCREW-GIB
- 5 GIB-TABLE
- 6 BEARING
- 7 LONGITUDE NUT
- 8 SCREW
- 9 SHAFT
- 10 SCREW
11. NUT-HANDLE LEVER
- 12 LEVER-HANDLE
- 13 HASHER
- 14 NUT
- 15 WHEEL
- 16 BUSH-BRACKET
- 17 INDICATOR
- 18 BEARING
- 19 BRACKET-CROSS
- 20 SCREW-CROSS
- 21 BRACKET-LENGTH
- 22 SCREW
- 23 SCREW-LONGITUDE
- 24 BASE
- 25 CROSS NUT





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